

after this period. Mr. V. Dal Nero, a keen observer, writes to me that a male in nuptial plumage was caught on the 16th May, 1887, on the Lake of Garda, and was stuffed by him. I have in my possession a male and a female killed in this country in October and November, and the last specimen obtained in our neighbourhood was on the 19th March, 1895. This is an adult male, stuffed by G. Minotto, and is now in a private collection in Venice.

VII.—*An Ornithological Expedition to the Cape Verde Islands.* By BOYD ALEXANDER.

(Plate III.)

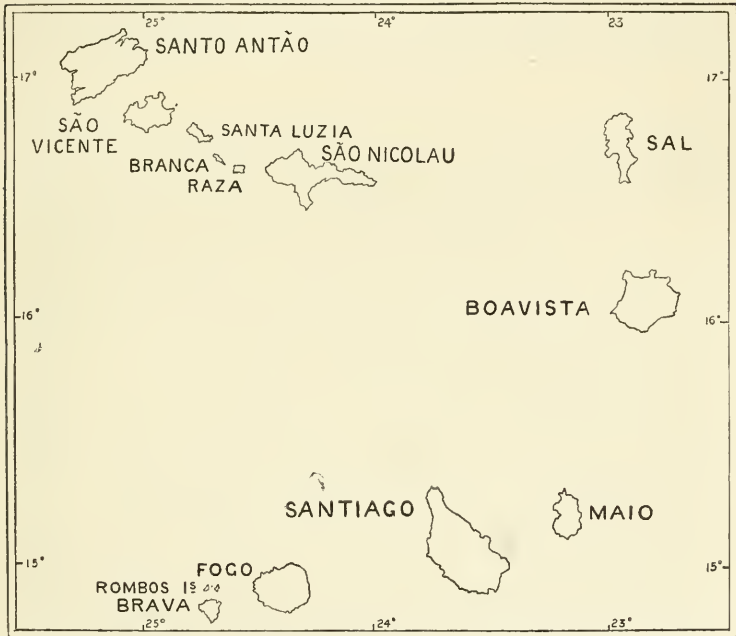
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I. *Introduction.*

ALTHOUGH Dr. Dohrn and Mr. Keulemans have recorded the results of their observations from the Cape Verde Islands in the 'Journal für Ornithologie' for 1871, it has long been felt, among those interested in the African Avifauna, that a further and more systematic working of the Islands would reveal many interesting facts. With this object in view, I left Liverpool on February 28th, 1897, for São Vicente, accompanied by a friend, Mr. John Duncan, and two skinners (Ramm of Cley, and Griffin of Tunbridge Wells).

During the voyage, besides numbers of Herring- and Lesser Black-backed Gulls that followed the vessel whenever we neared land, we noticed on approaching Vigo, off the Spanish coast, large parties of Guillemots and Razorbills on the way northward to breed, and from Vigo down to Lisbon a considerable number of Gannets. At Lisbon, close to the quay, I observed an example of *Larus melanocephalus*, with the black hood almost assumed.



OUTLINE MAP OF THE CAPE VERDE ISLANDS.

(The names are taken from the article in Longmans' 'Gazetteer,' 1895, by Mr. J. Batalha-Reis.)

On the morning of February 10th we arrived at São Vicente. The barren aspect of the island with its lofty hills, volcanic to the last degree, and with sides terminating seaward in precipices, discouraged us not a little. On landing, the British Consul introduced us to the Governor-General, Senhor Serpa Pinto, who seemed greatly amused

at the object of our expedition, telling us that "the resident species on the islands are very few: in fact, nearly all the birds are migratory and come from the Continent." Then, pointing to a cage close by full of Estreldas, he said: "You can find these birds on Santiago breeding in a wild state, among the sugar-cane. They were originally imported from the West Coast." Moreover, to add to our discouragement, we learnt that we had come too late to find the birds nesting, the breeding-season being in August, September, and October, during the fall of the rains.

II. *Santiago.*

My original intention had been to commence by working Santo Antão, situated not more than nine miles from São Vicente, from the quay of which its southern coast, gently sloping up to volcanic masses of hills, could be easily discerned. But the Governor-General, who happened to be going to Santiago, advised us to accompany him, and kindly promised every help in his power towards the furtherance of the expedition, adding that that island was the best of the group as regards bird-life. Accordingly, on February 12th, in the afternoon, we started in the 'Loanda,' the Portuguese mail-steamer, and at daybreak the next morning reached Santiago, and dropped anchor in Porto Praya.

The first birds we saw were a number of Black Kites. Fifteen to twenty appeared over the water and kept beating round the vessel's sides, dexterously catching up pieces of offal. With legs well tucked into the breast-feathers, a Kite would swoop towards its selected prey, always going past it by a few inches; when, with a sharp clean stroke, the feet would be brought down to catch the object up, and then, clearing the water by a few beats of its wings, the bird prepared to devour the morsel, the head being lowered and the feet grasping the food raised to the mouth, a movement full of grace.

Overlooking the bay is Praya itself, built upon a small oblong plateau, the sides of which in places are inaccessible. The houses, square and low, present a bright appearance;

for the walls of some are of glaring white plaster, while others are painted pink, light blue, or yellow, as the case may be. Beyond these houses are clusters of huts belonging to the peasants, simply constructed; the walls being of stones pieced together and thatched with the dried blades of the sugar-cane. Directly below the plateau, and on each side, there are ravines holding narrow groves of coconut-trees, with small plots of sugar-cane. The surface of the fair green blades is blotched here and there with the dark green of orange-bushes, and splashed in places with the yellow of flowering tamarisks. Looking towards the interior of the island, no luxuriance of vegetation is visible. In the middle distance there rises a series of cone-shaped hills, which become more numerous and mountainous in the far distance, while in the foreground are stretches of table-lands of varying levels, bordering the sea.

For three days we stayed at the Palace, where the Governor-General showed us much kindness. This stay enabled us to prepare for a start up country. While in Praya, I observed a few individuals of *Passer jagoensis*, which, like the town members of the House-Sparrow, frequented the vicinity of buildings. On my approach they used to get up and fly to the young trees that line the streets and there scrape their beaks after their meals, uttering now and again chirping notes that reminded me very much of those of our Pied Wagtail. Around the outskirts of the town, numbers of Egyptian Vultures, all adult birds, sat hunched up on the boulders that strew the plain, choosing, however, stones as far apart as possible one from another—as if a quarrel had taken place between them, resulting in a mutual coolness. These birds find plenty of food in Praya. Every morning, as regularly as clockwork, they used to troop over the town on their way to the slaughter-house that lies a little back from the quay, in order to gorge themselves on the offal. Then they would return the same way, but a little slower this time, to their old place of meeting beyond the town, where they remained inert throughout the heat of the day.

Deciding to work the western portion of the island first, I selected the vicinity of a small village called Caiarda, about six miles north of Praya, for our encampment. Owing to the heavy baggage, which had to be carried on donkeys, sixteen in number, it was by no means easy to get there, since communication between the different villages is maintained merely by rough stony footpaths. There is, however, one road of recent construction, due to the efforts of the present Governor-General, who has improved the island in more ways than one. This road, a good macadamized one, lies on the eastern side of the island, leading through the villages of São Jorge and San Domingo and then into the heart of the island. Nearly level throughout, it is a triumph in road-making, considering the hilly nature of the country.

On the 16th, after taking over three hours to accomplish the six miles, we pitched our tents close to the side of a steep valley, one of the largest in the island, and very long and tortuous. On nearing the coast it becomes nothing but a boulder-strewn watercourse, down which torrents rush in the rainy-season. But further inland, where local springs crop out, this valley, like many another in the island, is very fertile, abounding in sugar-cane plantations, orange-groves, and coconuts. Early the next morning we started to explore this valley, directing our course up its centre towards the village. After a mile of rough walking, we caught sight of clusters of huts peeping out from a mass of tropical growth, and close to a large sugar-cane plantation, bordered in places with strips of fish-cane.

On leaving the valleys and gaining the open country all signs of verdure disappear, and nothing but brown arid-looking plains and hill-slopes, too barren and exposed for cultivation and destitute of all forest growth, meets the eye. The gentler slopes are, however, clad here and there with *Acacia albida*; while portions of the plains are toned with patches of dried-up grass and the dark ivy-green leaves of a weedy-looking plant with coarse stem-growth.

While near Caiarda we worked nearly half the island,

devoting our attention both to the shore-line and to the valleys, as well as to the higher ground. In all the steep valleys are colonies of black-faced West-African monkeys. From our tents we constantly caught sight of them chasing each other in and out of the rocks, while some, bolder than others, would gain the crest-line, where their figures showed out clear against the horizon.

On February 28th we proceeded to Praya and took steamer to Brava, where we stayed till March 16th, and then returned to Santiago, this time to Tarrafal, its northernmost point. From Tarrafal we journeyed back to Praya, a distance of 54 miles, working the country on the way. About halfway, at La Catrina, we put up at the Mayor of Tarrafal's country-house, situated in one of the most beautiful valleys of the island. Our next stop before reaching Praya was at São Jorge, placed in another valley almost equalling in beauty that of La Catrina.

On the 31st we returned to São Vicente and remained for two weeks in order to find out what the island possessed in the way of bird-life.

III. *List of the Birds of Santiago.*

1. NEOPHRON PERCNOPTERUS.

Parties of this species are the scavengers of nearly every village on the island. Breeding takes place in December and January.

Two specimens were obtained.

2. BUTEO VULGARIS.

This species is not mentioned by Dohrn. Only one specimen (♀) was obtained or observed. When first sighted, it sat facing us on a small tree halfway up one of the sides of a valley. On endeavouring to approach it, it flew away down the valley, but eventually returned after an absence of half an hour to the same spot, where it fell to my gun.

3. MILVUS MIGRANS.

It seems probable that the Kite of the Canary Islands

recorded by Mr. Meade-Waldo under the name of *M. ictinus* is the Black Kite, which is plentifully distributed over the whole of Santiago, many birds taking up their abode in the rocky clefts of the precipitous valleys. Hence they swoop down among the huts and prey upon young chickens, to the great annoyance of the peasants, who often begged us to destroy these marauders, and great was their delight when they saw some fall to our guns. Considerable numbers also haunt many of the small bays along the coast, where fishing is carried on. One day we surprised a Kite in the act of devouring a Kittiwake Gull on a rock close to the sea. Several remarkably handsome specimens were obtained.

4. *FALCO NEGLECTUS* Schlegel.

Many of these Kestrels frequent the plains, and sit hunched up on the boulders, allowing one to pass close by without showing the slightest concern. In the vicinity of habitations their numbers increase. Their principal food consists of lizards and locusts, which people the plains in thousands. Hovering is seldom resorted to, the Kestrel merely making a straight swoop from its point of vantage, for rapid execution is absolutely necessary in order to fix the quick-moving lizard. In February we found these Kestrels pairing; the clear, rattling love-cries of the female, whenever the male approached, used to sound continually from nearly every valley. In this species coloration in plumage varies considerably, some birds exhibiting the ruddy colour of our Kestrel, while others are very dark and lack the rufous tinge altogether. Three specimens were obtained.

5. *STRIX INSULARIS* Pelz.

Not common, and found chiefly in the northern portion of the island. During our night rides we saw a few of these Owls that sat on the "purga" trees lining the roads. On our approach they used to fly away screeching. The natives also told us that they now and again drive them out of the tops of the coconut-trees.

6. CORVUS UMBRINUS Sund.

It is very interesting to have found this species on the Cape Verde Islands, for it was generally supposed that the bird referred to by Dohrn as *C. corone* would prove to be *C. tingitanus* (see Irby, 'Ibis,' 1874, p. 264). *C. umbrinus* does not appear to have been recorded from any country nearer than Egypt. We found this species on nearly every plain, and also to a certain extent in the valleys. On February 25th we discovered a nest ready for eggs on a ledge of rock close to the sea and about thirty feet up. Locusts form the chief food of these birds, and they hunt for them in a most systematic manner. On several occasions I had the opportunity of watching them on the war-path. A party gets together and straightway sets about circumventing a portion of ground that is likely to hold locusts. Then a certain number spread themselves out like the cordon system of outposts, while the remainder, with quick strides, beat up the ground towards the locusts, which jump forward—the majority becoming the prey of the birds drawn up in line, who, carrying out the principle of "share and share alike," act in their turn as the skirmishers of the next beat. Three specimens were obtained (one a pied variety). /

7. SYLVIA CONSPICILLATA.

Spectacled Warblers are found in fair numbers on the higher ground, but never in the valleys. They resort a great deal to the acacia-trees, from the tops of which they rise up perpendicularly into the air, uttering all the while a chattering song, resembling that of their close congener *Sylvia cinerea*. Three specimens were obtained.

8. SYLVIA ATRICAPILLA.

Blackcaps were numerous in every valley and in full song. Besides insects, they feed on the orange blossom as well as on the fruit, in which they peck big holes.

9. SYLVIA ATRICAPILLA GULARIS subsp. nov.

This resident form of Blackcap differs from *S. atricapilla* in that both sexes have chin and upper throat umber-brown.

The song of the male is, moreover, very different. The bird commences with a confused chattering, not unlike that of the Whitethroat, and this lasts for at least five or six seconds; then the bird bubbles into the mellow-noted song of *Sylvia atricapilla*.

Adult male. Total length 5·84 inches, culmen 0·6, wing 2·8, tail 2·4, tarsus 0·8.

Adult female. Total length 5·8 inches, culmen 0·6, wing 2·8, tail 2·35, tarsus 0·81.

This resident form is not common; it was not until the end of February that the influx of the migratory *S. atricapilla* took place. Five specimens were obtained.

10. CALAMOCICHLA BREVIPENNIS (Dohrn).

Calamocichla brevipennis Sharpe, Cat. B. vii. p. 132.

We obtained a fine series of this Warbler. Though fully described by Dohrn in 1871, it appears to have been overlooked by Seeböhm, and is not mentioned in his volume of the Catalogue of Birds. One of the typical specimens was presented to the British Museum by Dohrn in 1866. This bird is placed among the Bradypтери by Dr. Sharpe, in a new genus *Calamocichla*, which also includes the allied form *C. newtoni* of Madagascar. Dr. Sharpe also overlooked Dohrn's description, as will be seen from the footnote. Typical examples of the genus *Lusciniola*, such as *L. melanopogon* and *L. gracilirostris*, are very closely allied to the present species and to *C. newtoni*, but in both of these the first primary is proportionately longer and more than half the length of the second primary. The adult has the upper parts a uniform dull greenish olive, not russet-brown; the underparts dull white; and the sides and flanks are pale brownish white, devoid of yellowish buff. Again, the scales on the front of the tarsus are obsolete or absent, but in the immature bird are well marked.

It may be found necessary to unite *Calamocichla* with *Lusciniola*. The bird described by Dr. Sharpe is immature and not adult, the former having the upper parts russet-brown, and the underparts, sides, and flanks yellowish buff.

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
São Nicolau :					
Ad. ♂	6.13	0.8	2.6	2.55	1.1
Ribeira, Santiago :					
Ad. ♀	5.9	0.75	2.4	2.4	1.0

Although sparsely distributed, a few pairs of this Warbler may be met with in nearly every valley where there is plenty of growth in the form of orange-groves and coffee- and sugar-plantations. We found it most numerous at La Catrina, where there is a series of running streams flowing along the large dried-up watercourse of the fertile valley and bordering thick beds of the sugar- and fish-cane. A spot like this seems a favourite resort.

Of a retiring nature, it is difficult to catch a glimpse of this bird; for it is far more often heard than seen, as it threads its way through the thickest part of a sugar-cane plantation. Allowing of a near approach, it mocks the listener by pouring out from its cool recess some exquisitely melodious notes that might be rendered by the syllables, "chou-chou-chou," "kecup-kecup-kecup," "kirreup." The first three are uttered with marked deliberation and followed by a pause, after which the remaining notes are given out in quick succession and in a higher key, a pretty, mellow trill being given to the last one. This song may be heard throughout the day, but is often very spasmodic in its rendering, becoming far more frequent, however, during the early morning and evening. The bird also has an alarm-note, a harsh, croaking "churr," while its flight is strong and resembles closely that of the Reed Warbler (*Acrocephalus streperus*).

From February up to the first part of April the bird undergoes its spring moult, while breeding commences in August. The nest, composed of dry grass, is of a deep cup-shaped form, and is generally to be found built between two or three stems of the sugar-cane, and about five or six feet above the ground.

11. PASSER SALICICOLA Vieill.

The Spanish Sparrow frequents nearly every valley. We

found it, however, most abundant at La Catrina, where we obtained a fine series. The favourite resort of these birds is a grove of tall coconut-trees, in the tops of which they build their nests, and owing to this the species has gained the name of "Coconut-bird" from the natives. The flight is very straight and steady, and a clear musical chirp is often uttered on the wing. They cause a considerable amount of damage to the oranges, in which they drill big holes. The number of males predominates over the females to a large extent.

12. PASSER JAGOENSIS.

Gould described this species as being peculiar to Santiago, but it has now become distributed throughout the whole group, though in nothing like such great numbers as in Santiago. We observed large flocks in the valleys and on the plains, and especially near the sea. These were chiefly composed of immature birds, the males showing a slight indication of the black patch on the throat, the feathers of the upper parts dark brown margined with light rufous, and a broad stripe of the latter colour over each eye. With the beginning of February the adults had commenced to undergo their spring moult, their plumage being anything but satisfactory in condition, and even by the end of May there were many which had some of their tail-feathers and primaries still in sheath. These Sparrows often fall victims to the Kite, and as a better safeguard against surprise they seek safety in numbers, coming together in immense flocks, and never getting far away from some good thick acacia-tree wherein to take refuge, or from the vicinity of a ravine strewn with boulders, into the crevices of which they creep like mice.

On March 28th, while at Praya, the Governor-General sent us a specimen for preservation. The upper mandible was totally malformed, being twisted almost round the lower one. The bird was in good condition, but how it could have obtained food appeared a mystery.

In August these Sparrows breed in large companies, many of the acacia-trees on the plains being crammed with their

big untidy nest-structures of the previous season. On the plains they feed on small locusts and grass-seed.

13. *ESTRILDA JAGOENSIS* sp. nov.

We found this species among the sugar-cane in large flocks, which keep up a continual twittering while on the wing. Altogether, in their behaviour and notes, they resemble the Lesser Redpoll. This bird is locally known as the "Sugar-cane bird." Thinking that this species was merely *Estrilda cinerea*, as recorded by Dohrn, we unfortunately did not pay much attention to it beyond obtaining one specimen.

Adult male. Most nearly allied to *Estrilda astrild*; but the general colour of the upper parts is grey, especially on the head and neck, and without any trace of rufous-brown. The chin and throat are pure white, slightly dusky on the cheeks, which show faint traces of darker bars; the ground-colour of the rest of the underparts is paler and greyer. Middle of the breast and belly pale rose-red; tail dark brownish black and considerably shorter than in *E. astrild*.

Total length (measured in flesh) 4·1 inches, culmen 0·38, wing 1·9, tail 1·8, tarsus 0·6.

14. *AMMOMANES CINCTURA* (Gould).

By no means plentiful, and locally distributed on the stretches of high tableland near the sea. More than a week elapsed before we noticed this species, and then only two birds, on a piece of loose gravelly land near Praya. This pair had a nest containing one young bird, almost fledged. On approaching the nest the two old birds, which were not far off, ran at a rapid rate towards their young one, the male bird uttering the whole time a plaintive "wheet."

Though we discovered more of this species later on, I never heard them utter more than this one note. They were always seen either singly or in pairs. Seven specimens were obtained.

15. *PYRRHULAUDA NIGRICEPS* Gould.

Locally distributed on the island and becoming less plentiful in its northern portion. It frequents the stretches

of the higher plain levels near the coast, in flocks that vary greatly in size. On one occasion we saw as many as sixty birds together. In these flocks there is a great percentage of females. To discover the presence of these birds puzzled us considerably at times. On the approach of footsteps they emit a faint, piping, ventriloquial note, like that of a young chicken, as they sit crouched together among the stones; and their plumage being much like the colour of the soil, it is almost next to impossible to discover them. They generally sit very close, and resort to flight only when absolutely obliged, then rising up close to one's feet to fly a few hundred yards ahead, and alighting again. The male has rather a pleasing little song, but somewhat monotonous. It is uttered on the wing, and sometimes, but not often, on the topmost twig of a tree. When singing on the wing the bird rises in concentric circles, with a very jerky Pipit-like flight, up to a height of not more than thirty feet, and then hangs in the air for a few seconds, after which it stops its song, and, with wings closed, drops to the ground again. Their chief food is grass-seed, and throughout the day the birds keep moving from one feeding-ground to another. In February we found them moulting, the plumage of the majority being in a poor state.

This species, though nearly allied to *P. melanauchen* from Nubia and India, appears to be well-founded. The male differs constantly in having the occiput and nape uniform white, shading gradually into the sandy brown of the back, and lacking altogether a black collar. The white also on the forehead extends further over the crown.

The female does not appear to have been described. It scarcely differs in plumage from the female of *P. melanauchen*.

Adult male (Santiago). Length 4·8 inches; bill light bluish horn-colour; iris dark hazel; legs and claws flesh-colour.

Adult female (Santiago). Length 4·2 inches; soft parts same as in male.

Seven specimens were obtained.

16. CYPSELUS UNICOLOR Jard.

We saw several of these birds flying round the houses in Praya.

17. HALCYON ERYTHROGASTER Gould.

This Kingfisher was about the first bird that we met with on landing. There is hardly a valley or dried-up watercourse that does not harbour several; while it is not unusual to find a pair or two along a rocky portion of the shore. It is a confiding bird, evincing a decided fondness for proclaiming its presence to every passer-by. When disturbed, with a slow and Jay-like flight it reluctantly travels forward, only to settle a few yards ahead on some slender overhanging twig of an acacia-tree, turns about, and, with neck bobbing up and down, stares one full in the face with large wide-awake eyes; while its bright plumage stands out clear and distinct, even through the fine network of the acacia-tree.

The bird possesses a song, or rather it might be described as a running voluble chatter, now soft, now *crescendo*, uttered on the wing and also when sitting, becoming loud and frequent, however, when the bird meets his mate. When the soft light of a brief twilight begins to reign over the valleys, the quaint, chatter-like song of this Kingfisher will often be heard rising above the humdrum singing of the locusts, and only drowned now and again by the rattling of the fan-like leaves of the coconut-trees. During the heat of the day this bird is fond of resorting to some shady pool, where it frequently indulges in a bath. From a branch overhanging the cool water it performs a series of dives, returning after each to the same perch, there to shake and preen its feathers before dipping again into the water. Its food consists of insects and lizards.

The voracity of the bird is sometimes remarkable. On one occasion one was killed in the act of swallowing a lizard measuring nearly five inches. When seeking after food a commanding position is taken up, whence the bird starts to

catch its passing prey, returning again, after the manner of the Flycatchers, to the same point.

Five specimens were obtained.

18. COLUMBA LIVIA.

Found in a more or less domesticated state in many of the valleys in which there are villages.

19. COTURNIX COMMUNIS.

We rarely met with the red-throated resident form of Quail, *C. capensis*, and the only specimen of it obtained could not be preserved. We often found migrants of the Common Quail, and always in exactly the same spots. We killed more than a dozen of these, and all were females, from which we are inclined to think that the sexes of this species on migration keep apart. Quails are not so numerous as they used to be. The Governor-General, who is a keen sportsman, told me that four years ago it was not an unusual thing to go out and get thirty brace in a day. The present scarcity is no doubt due to the lack of food, consequent on there having been no rain for the last three years.

20. NUMIDA MELEAGRIS.

The common Helmeted Guinea-fowl is abundant on the island, and is to be met with on the plains as well as on the high ground. We frequently saw large flocks, sometimes numbering over a score, but they were very wild, and the fact of there being no cover added to the difficulty in approaching them. While the Flying Squadron was at Praya the Governor-General organized a "shoot" for the officers, and, although beaters were employed, only five fowls were bagged throughout the day. At night the Guinea-fowls come down from the high ground into the valleys and roost in the acacia-trees. It is then that the natives go after them and knock them over with sticks.

21. CURSORIUS GALLICUS.

Only in one locality did we come across this Courser, and that was on a small, loose, stony tableland close to the sea, and not far from Praya. The flock was not a large one, consisting

of 11 birds, the majority of which were immature. After the first two or three shots they became very shy, running ahead of us at a prodigious rate for 500 yards or so, and then getting up and taking a wide circle out to sea, sometimes disappearing entirely from view, but always returning to the same locality, where they evidently breed. When on the wing this bird utters now and again a metallic "*whit*" several times in rapid succession. In flight the rich black underneath the wing is remarkably conspicuous.

Six specimens were obtained.

22. *ÆGIALITIS CANTIANA*.

On February 25th we found a pair of Kentish Plovers which evidently had young, though we could not discover the nest. The female kept running in front of us, shamming a broken wing, and the male circled above our heads. On several flat portions of the shore-line we came across flocks of these birds.

The legs and feet of all the specimens we obtained are a pale slate-colour, instead of being black, as in the northern form, while the coloration of the plumage in the males is much brighter.

23. *NUMENIUS PHÆOPUS*.

24. *TRINGOIDES HYPOLEUCUS*.

On February 25th we observed the first Common Sandpiper and obtained it.

25. *TOTANUS GLOTTIS*.

A pair of Greenshanks appeared on the low-lying rocks near Praya on February 24th.

26. *ARDEA CINEREA*.

The Common Heron was only twice observed.

27. *ARDEA GARZETTA*.

The Little Egret does not breed on this island, but stragglers are seen now and again.

28. *SULA FIBER*.

There are no breeding-stations of this Gannet on this island, but two specimens were obtained.

29. PHAETHON ÆTHEREUS.

This Tropic-bird breeds in small numbers in the sea-cliffs to the north-east of Praya.

30. FREGATA AQUILA.

One day we observed two Frigate-birds going in the direction of Boavista, where there is a colony.

IV. *Brava*.

Brava is the smallest inhabited island of the whole group—about six miles long and four broad—and also, in proportion, the most thickly populated. Being very mountainous, volcanic in nature, and bare of wood-growth, there is hardly a stretch of tableland on the whole island; the coast is steep and rugged—no shore-line to speak of, except for a short length of low-lying rock near the harbour. Wherever the hillsides are climbable every inch of ground is cultivated, being either sown with maize or planted with yams, while in the valleys there are small sugar- and coffee-plantations, orange-groves, &c. The harbour is small, but ships of considerable size can anchor within a few yards of the steep volcanic-looking cliffs. Three miles inland from the harbour, Povação, the principal town, is situated. A fine paved road leads up to it, but is so steep in places that it becomes well-nigh impossible to climb it either on horseback or on donkeys. In the larger valleys monkeys abound, doing much havoc among the sugar-cane.

Lying to the eastward, about nine miles distant, and far exceeding Brava in height, is Fogo. Though almost beyond the range of visibility, on a very clear day it can be seen, a gigantic cone-shaped mass of volcanic rocks towering above the sea, looking, moreover, impressively grand when bathed in the purple-toned shadows of a sunset.

V. *List of the Birds of Brava*.

1. NEOPHRON PERCNOPTERUS.

The precincts of nearly every village are haunted by a pair or two of these Vultures. On March 11th a native boy brought us an adult male caught with a line and fish-hook.

2. MILVUS MIGRANS.

Not numerous. The majority haunt the vicinity of the harbour, but inland the dearth of small birds and lizards confines their numbers to a few stray individuals. A young bird, fully fledged, that had fallen from its nest on a rocky ledge overlooking the town, was brought to us on March 7th. One adult female was obtained.

3. FALCO NEGLECTUS.

Common everywhere.

4. STRIX INSULARIS.

A pair inhabit the belfry of the church in Povação, besides a few others in the rocky clefts of the heights around the town. We were able to procure only one specimen, a male. Its stomach contained 13 beetles (a kind of cockroach, very common in the houses).

5. CORVUS UMBRINUS.

Common everywhere.

6. SYLVIA CONSPICILLATA.

Only a few individuals observed, and these on the higher ground.

7. SYLVIA ATRICAPILLA.

We found the Blackcap in every valley, especially in the portions near the sea and where there was an abundance of orange-trees. The males were in full song. A pair used to sing very prettily in a small grove of orange- and banana-trees just outside our house. We shot more than six birds, but none were *Sylvia atricapilla gularis* (cf. p. 81).

8. CALAMOCICHLA BREVIPENNIS.

The growth of sugar-cane being very small, this species was by no means plentiful; the only two pairs we met with were in the small plantation outside our house in Povação.

One adult male was obtained.

9. CHELIDON URBICA.

On March 15th we obtained a female, the only one observed, evidently a migrant. It was flying up and down a

steep valley close to the sea in company with a batch of *Cypselus unicolor*.

10. *PASSER SALICICOLA*.

Abundant. The adults were undergoing their spring moult, the plumage being in a very poor state.

Three specimens were obtained.

11. *PASSER JAGOENSIS*.

We came across this species in only one locality—the vicinity of a village just above Povação. The plumage was in fine condition, the moult having taken place.

12. *ESTRILDA JAGOENSIS* Alexander.

A small flock or two among the coffee-plantations in Povação.

13. *CYPSELUS UNICOLOR*.

Far more numerous than in Santiago. Many batches, varying in size, frequent the cliffs overlooking Povação and the entrance of steep valleys near the sea. Among these no other Swifts were observed. They nest in the crevices of the cliffs.

Two specimens were obtained.

14. *HALCYON ERYTHROGASTER*.

Only a few individuals met with, and these frequented the ravines near the harbour.

15. *COTURNIX COMMUNIS*.

There are few residents; all the birds met with were migratory. They frequented the maize-stubbles, and were often to be found feeding with chickens in the vicinity of the peasants' huts. Two specimens obtained.

16. *TRINGOIDES HYPOLEUCUS*.

On March 5th two pairs were seen on the low-lying rocks near the harbour. On being flushed they uttered their well-known piping "*wheet, wheet, wheet.*"

17. *PUFFINUS MARIÆ* sp. nov.

On March 7th, while in the vicinity of the harbour, two boys brought us four specimens of this new Shearwater. They

had obtained them from the holes of a rock out at sea and along the coast. We also noticed a few individuals, on our way to Rombos Islands, flying over the water; but, to our surprise, none inhabited the rocks of these islands. They appear to confine their habitat to the Brava coast. We met with this species again on Raza, where it is much more numerous. Both sexes are very similar in plumage to *P. kuhli*, but the crown and neck are much darker and of a deep sooty grey. The dimensions are also very much less, the bill especially being conspicuously shorter and much more slender.

P. mariae.

	Total length.	Exposed culmen.	Depth of bill at nasal opening.	Wing.	Tail.	Tarsus.	Middle toe and claw.
	in.	in.	in.	in.	in.	in.	in.
Brava Island:							
Ad. ♂	17·4	1·7	0·22	11·8	4·9	1·8	2·3
Ad. ♀	17·3	1·62	0·2	11·5	4·9	1·75	2·35
Raza Island:							
Ad. ♂	17·4	1·7	0·28	12·1	4·7	1·75	2·4
Ad. ♀	17·0	1·7	0·22	11·8	4·8	1·75	2·35

P. kuhli.

Great Salvage Island:	Total length.	Exposed culmen.	Depth of bill at nasal opening.	Wing.	Tail.	Tarsus.	Middle toe and claw.
	in.	in.	in.	in.	in.	in.	in.
Ad. ♂ ab. . . .	22·0	2·35	0·42	14·0	5·7	2·15	2·9
Ad. ♀ „ . . .	20·0	2·15	0·38	13·9	5·5	2·15	2·85

Four specimens were obtained on Brava.

18. *RISSA TRIDACTYLA.*

On March 4th and five following days a pair of Kittiwakes frequented the harbour, and were the only Gulls met with.

19. *SULA FIBER.*

Owing to the proximity of their breeding-station on Rombos Islands, Gannets, singly or in pairs, were constantly to be seen hanging about the coast in search of food, while it was not uncommon to catch sight of flocks of from 15 to 20 beating over the smooth sea in a compact wedge-shaped body; sometimes skimming over the surface in graceful and steady flight, sometimes rising high in the air—mere specks in the sky—as they prepared to pass over

the Brava hills in order to reach another part of the coast. The dexterity with which the species catches its prey must be seen to be appreciated. As soon as the fish is sighted, the bird, with closed wing, shoots into the water, the next moment to reappear floating on the surface busy tackling its prey and looking for an instant like a bird mortally wounded. Sometimes, however, a series of rapid twists and turns are indulged in prior to the dive, some 20 feet above the water. These movements may either result from the presence of a shoal of fish, the sight of which causes the bird to waver in its choice, or to a single fish having altered its course.

Besides being much smaller than the female, the coloration of the soft parts in the male is altogether brighter, while the remarkable patch of bluish slate-colour visible in front of the eye in the female is continued round it in the male. The webs also in the feet of the latter are of a greenish yellow.

VI. *The Rombos Islands.*

On March 13th we set out to explore the Rombos Islands, a small group three in number, uninhabited and devoid of water, lying about five miles to the north of Brava, and easily discernible from the mainland except on a very dull day: their sandy-brown appearance, unrelieved by any growth, affording a striking contrast to the deep blue of a southern sea. Our first attempt to reach this group failed. About halfway across we got into a heavy sea, which grew rapidly worse, our small boat, heavily laden, rushing into the big wave-troughs and striking the water with violent thuds. Then, to make matters worse, the rudder broke, and this became a signal for the whole crew to shout vociferously at each other; however, after three hours of stiff rowing, we regained the harbour, but not before we had been wetted to the skin. Our second attempt, two days later, proved successful, and we landed safely on the largest island, barely two square miles in extent. Its general character is flat, save for a lofty hill of a sugar-loaf shape that rises up about its centre, while creeks and small bays make indentations

along the coast-line. In many places its surface is strewn with ironstone, while there are several creeks that hold nickel and copper.

A few wild goats inhabit the island, while the only birds we came across were a solitary Vulture and a Kestrel. Petrels used to breed here in numbers until they were driven away by the descendants of a pair of cats brought over by the goatherd. ✓

As soon as morning came we left for the next island, about a mile distant. Just halfway there lies a rock of considerable extent. This is a breeding-station of the Gannets. On approaching it we could see these birds chequering the scarped sides in hundreds, and at the report of my gun they rose up from the recesses till it became difficult sometimes to behold the sky. Close to this barren rock, and almost in line with it, lies the remaining island of the group. It was upon this that our hopes were centred, since, according to the Brava fishermen, a large colony of Petrels existed there. On the Brava side this island culminates in a rocky headland of considerable altitude, serving as a screen to hide from view the low, flat, gravelly land directly behind it, in length about two miles, and one in width at its broadest part. This portion was literally honeycombed by Petrels, causing the ground underfoot to give way at nearly every tread. The first species discovered was the elegant White-breasted Petrel (*Pelagodroma marina*). We found it breeding in considerable numbers, the eggs being in an advanced stage of incubation. The nest-holes had an average depth of 8 inches and a length of 2 feet. We are inclined to think that the female does the entire incubation, since every bird taken off its egg proved to be of that sex. The only three males obtained were in company with females and were not incubating.

In unearthing these Petrels several managed to escape us. They ran along the ground in a dazed condition, and before we could rescue them they were pounced upon and carried off by Kites.

In close proximity to *Pelagodroma marina* was a colony of

Oceanodroma cryptoleucura, the burrows of which, however, ran further into the ground, besides being more tortuous. Many had young, while most of the eggs were well incubated. Further up the island and towards the rocky headland, we discovered *Puffinus assimilis* breeding, not only in holes, but many beneath rocky boulders and in small clefts and overhanging rocks, while in one instance a bird had made its nest beneath the boards of a tumble-down hut. In this last case the nest contained a quantity of dry grass. / We next turned our attention to the rocky headland itself, where the steep sides had been here and there made hoary by the hundreds of Gannets that peopled them. On the long narrow ledges of rock facing the sea countless numbers of these birds were standing in serried ranks, bolt upright. Wherever a portion of this rock possessed a superficial covering of earth they nested in dozens, hardly 2 feet intervening between the nests. These consisted of a shallow depression made by the bird itself, and further bordered by a fringe of small pebbles and flakes of rock. Both sexes share in the incubation, and we nearly always found the male on the nest throughout the day. Incubation was well forward, nestlings being in every hollow, but only one in each; invariably the second egg of the clutches had turned out wrong. There were, nevertheless, many fresh eggs, but sad havoc is constantly made among them by the fishermen whenever they visit the island. The birds, too, do not escape molestation, often being stoned on their nests and killed for eating purposes. / The Tropic-bird (*Phaethon ethereus*) suffers in the same way.

The Gannet, however, is not the only inhabitant of this headland. We found *Phaethon ethereus* breeding in small numbers in suitable holes and clefts among different portions of the rocks. On that particular day, when the sea wore but a darker tone than the sky, it was a pretty sight to watch these birds taking wide graceful circuits from their nest-holes out across the sea, the glossy white of their plumage at once striking the eye, while their two long rectrices, like slender pennons, streamed out behind. Both sexes incubate, and while

the female is sitting the male will often sit alongside to keep her company. Towards sundown these birds congregated over some favourite spot and indulged in nuptial flights, at times circling high in the air and uttering the whole while a series of harsh screeching notes that bore a striking resemblance to those of the Common Tern during the breeding-season. ✓

When the night shadows began to brood vaguely over this lone waste of an island, the Petrels came abroad and filled the still air with their weird cries. They mustered strongly, flitting to and fro over the low-lying ground in hundreds. Among the number the most noticeable was *Puffinus assimilis*, as it glided like some large soft-winged bat over the small sandhills, and even sometimes brushing past our camp-fire, for ever uttering its weird cry "*karki-karrou, karki-karrou, karki-karrou,*" while amid these a similar but softer one would often strike fitfully upon the ear, coming from *Oceanodroma cryptoleucura* as it flitted over the island, crying to its white-breasted relative "I'm a nigger, I'm a nigger, I'm a nigger." And the White-breasted Petrel (*Pelagodroma marina*) replied by uttering grating notes like those of a pair of rusty springs set in motion.

As the night wore on, the cries of these Petrels died away, only to recommence, however, with redoubled energy just as dawn arrived, and then, as soon as the dusky light waxed clear, these voices ceased as suddenly as they had commenced, indicating that their owners had crept noiselessly into their dark retreats, there to remain till the heat had once more abated. ✓

VII. List of Birds of the Rombos Islands.

1. NEOPHRON PERCNOPTERUS.

2. MILVUS MIGRANS.

3. TINNUNCULUS NEGLECTUS.

4. PASSER JAGOENSIS.

5. STREPSILAS INTERPRES.

I shot a single bird on a stretch of low-lying rock. I‡

was in a moulting condition, the summer plumage just beginning to show.

6. OCEANODROMA CRYPTOLEUCURA.

Specimens obtained : six males, four females ; four young in down. Seven eggs.

7. PELAGODROMA MARINA.

Specimens obtained : three males, eleven females. Nine eggs.

8. PUFFINUS ASSIMILIS (Gould).

Puffinus assimilis Ogilvie Grant, Ibis, 1896, p. 50 ; Salvin, Cat. B. Brit. Mus. xxv. p. 384 (1896).

The small Shearwaters belonging to this section are very puzzling. All our examples, though at first sight most nearly allied to typical specimens of *P. obscurus* from the Pelew Islands and elsewhere, have the outer half of the inner webs of the primary quills distinctly paler than the part next to the shaft, and shading into white towards the base. In this respect they approach typical *P. assimilis* from Australia, which has the outer half of the inner webs of the primary quills pure white. Since all the examples obtained by Mr. Ogilvie Grant at Madeira, Deserta Grande, Porto Santo, and Great Salvage belong to the latter form, we should certainly have expected to find typical *P. assimilis* at the Cape Verde Islands. The under tail-coverts of these Shearwaters vary much in colour. In *P. obscurus* they are largely mixed with dark sooty-brown ; in typical *P. assimilis* they are entirely white ; while in our examples they are mostly dark smoky-brown, only the shorter ones being mixed with white, in this respect resembling the birds from Madeira and the Salvage Islands, which are otherwise typical *P. assimilis*. Again, in size of bill and length of wing the Rombos Shearwaters agree with *P. assimilis*, so that, in spite of the dusky inner webs of the primaries and the dark colour of the under tail-coverts, it is advisable to refer them to that species, though they seem to be somewhat intermediate.

	Total Exposed				
	Length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
<i>P. obscurus</i> (New Zealand)	12·0	1·2	8·1	3·1	1·55
<i>P. assimilis</i> (West Australia)	10·5	1·0	7·4	2·7	1·5
<i>P. assimilis</i> (Cape Verde Islands) ..	12·0	1·0	7·3	2·95	1·35

We obtained on Rombos nine males, six females, and five eggs of this Shearwater. The average measurements in the flesh were: 12·2, 11·8. The skin measures about 10·4.

Soft parts:—Bill slate-blue; iris dark brown; legs and feet pale blue, outer foot black; webs pale yellow; claws brown.

9. SULA FIBER.

Eggs obtained, four clutches.

10. PHAETHON ÆTHEREUS.

Four specimens obtained, one young in down. Three eggs.

VIII. List of the Birds of São Vicente.

1. NEOPIRON PERCNOPTERUS.

About the first bird one sees on arriving in the harbour.

2. MILVUS MIGRANS.

3. PANDION HALIAËTUS.

Breeds on the island.

4. CORVUS UMBRINUS.

5. SYLVIA CONSPICILLATA.

On April 12th we found numbers of nests of this bird containing eggs, and some with young, in a clump of lavender-bushes close to the shore of the harbour. Some of the nests were fully seven feet from the ground. The building materials used were fine dead grass and small twigs of the lavender-bush, the nests being stoutly and compactly built. Each nest contained either four or five eggs, but the former complement was more general.

6. PASSER JAGOENSIS.

7. ESTRILDA JAGOENSIS.

8. COTURNIX COMMUNIS.

9. NUMIDA MELEAGRIS.

Breeds in August.

10. ÆGIALITIS CANTIANA.

On April 5th we discovered the young of this Plover on some waste ground at the mouth of the harbour. The nest was nothing more than a shallow depression, fringed with small stones and flakes of rock.

11. CALIDRIS ARENARIA.

Several birds put in an appearance along the shore of the harbour on April 4th.

12. ARDEA PURPUREA.

On April 4th we obtained a fine specimen near a brackish pool close to the harbour.

13. ARDEA CINEREA.

14. ARDEA GARZETTA.

Stragglers now and again seen.

15. SULA FIBER.

IX. *São Nicolau.*

From São Vicente we proceeded on April 14th to São Nicolau. In its general character and growth in the valleys, it closely resembles Santiago; the hillsides are, however, more cultivated, being devoted to the growing of yams, and stepped with stones in order to ensure better irrigation. We occupied a house in a very fertile valley just above Stancha, and this we made our headquarters from which to work the island. Owing to the abundance of fish, and the rocky nature of many portions of its shore-line, São Nicolau is a favourite resort of the Osprey. This species does not occur round the southernmost islands of the group, and it is only when lat. 16° is reached that the presence of the bird becomes evident. On April 20th, while exploring the northern side of the narrow portion of the island, we discovered several eyries. Long before reaching the locality, we caught sight of a fine bird beating along an open part of the coast. It passed and repassed us several times as we

wound our way along the shore-line, the extent of its beat appearing to be about a mile.

From the main path that winds through a range of precipitous hills, we struck off and took a small goat-track that skirts the sea, in some places so close to the edge of the cliffs that one false step would involve the fall of both donkey and rider down a height of more than 40 feet. This route, although tortuous and most difficult, enabled us to observe the bird-life which existed on the low stretch of black rocks fringing the cliffs. The first bird was a Little Egret (*Ardea garzetta*), which kept ambling along the rough slabs of rocks with head bent low in search of food, its white body dipping and rising with its uneven gait, and at times completely veiled by spray. On a close approach, the bird stood stock-still, craned up its head till neck, body, and legs were in one straight line, and a moment later made out to sea, with a flapping flight, keeping all the while close to the surface.

We next disturbed a Whimbrel and a small party of Turnstones, three of which were peacefully dozing on a piece of rock, while the fourth stood almost knee-deep in a shallow pool. At the sound of our footsteps they rose up, uttering their pretty trilling notes, and the Whimbrel followed them closely; its persistent cry, of seven whistles only, striking a deeper key. One of the Turnstones had almost assumed its summer plumage. Another mile of difficult travelling brought us to open ground. Hitherto the range of hills on our right had hugged the shore closely, but at this point they receded and left a wide open tract. Just before we emerged upon this open land, a small conical rock, rising up from the sea and about 20 yards from the shore, arrested our attention. A more careful examination discovered a fine adult Cormorant (*Phalacrocorax lucidus*) ensconced in one of its hollows. He was keeping watch over his consort, who sat on her nest just above his head. Pushing forward, a cluster of native huts shortly came in sight, nestling at the foot of the hill-range.

Here the cries of the Ospreys told us that we could not be

far from their eyries. Their plaintive cries, capable of being heard at a considerable distance, often deceived us as to their actual whereabouts. Here, over this open plain, studded thickly with brown fragments of volcanic stone, several Kites wheeled in a lazy fashion, their distinct shadows playing round a batch of Ravens (*Corvus umbrinus*) that strutted to and fro in a contented manner, busy catching the unwary locust before it could bounce to another stone. Amid this black assemblage, Vultures crouched upon the largest boulders, looking pictures of laziness.

Presently we overtook a native boy, who conducted us to the foot of a precipitous hill about ninety feet in height. Towards its inaccessible summit the surface is seared and greatly broken. On two of the ledges, some thirty feet apart, were a couple of Osprey's nests that looked from where we stood like huge balls of coarse twine. Now and again, faint cries of the occupants within would reach our ears, and, looking seaward, we saw the male bird pursuing a straight course some twenty feet above the water, beyond the breakers. Suddenly he desisted in his flight, and for a few brief moments hung poised above the water; then his head was lowered, the legs dropped ready to seize and clasp the prey, but the next moment they were sharply drawn up again, and the bird flew on in search of better food. Another opportunity soon came, and of this the bird took full advantage. Turning obliquely from his course, he sped downwards and was hidden for the instant in a cloud of spray. Then, with a flap, he freed himself from the water, mounted above the cliffs, and flew straight to his mate, who sat upon a boulder of rock patiently awaiting his return. Possessed of the food, she then commenced to wing her way upwards to her nest. Her movements were full of symmetry and grace; no beat of pinions was visible as she ascended higher and higher in spiral circles. On nearing her offspring, a string of plaintive calls burst from her, calls that seemed to be saying "I'm coming, I'm coming, I'm coming." In the meantime the male had once more returned to the shore-line, where his form soon became swallowed up in the bright haze, while the

next intimation we had of his return was the sunlight playing upon his breast. This system of feeding the young was always adopted; that is to say, while one bird was on the war-path, the other remained in the vicinity of the nest, ready to convey the food to the nestlings.

The fish chiefly taken appeared to be the garoupa (*Serranus cabrilla*), which abounds round the São Nicolau coast. From the boy we learnt that there were several eyries in the vicinity, and that the pairs had resorted to them for many years in succession.

During our stay in the locality we obtained two magnificent old birds, besides three immature specimens.

X. *List of the Birds of São Nicolau.*

1. NEOPHRON PERCNOPTERUS.

A large company of this species frequents Tarrafal Bay, where whaling is carried on. They feed on the blubber.

2. MILVUS MIGRANS.

Three specimens obtained.

3. FALCO NEGLECTUS.

Common.

4. PANDION HALIAËTUS.

Five specimens obtained.

5. STRIX INSULARIS.

We constantly heard the screech of this Owl at night.

6. CORVUS UMBRINUS.

Plentiful.

7. SYLVIA CONSPICILLATA.

8. SYLVIA ATRICAPILLA.

Five specimens obtained.

9. CALAMOCICHLA BREVIPENNIS.

Fairly numerous, frequenting chiefly the coffee plantations. Nine specimens obtained.

10. HIRUNDO RUSTICA.

On April 15, as we passed through Stancha, we saw a

Swallow flying up and down one of the narrow streets, and on the 26th another one among a party of Swifts (*Cypselus unicolor*).

11. PASSER SALICICOLA.

12. PASSER JAGOENSIS.

13. CYPSELUS UNICOLOR.

Breeds among rocky portions of the hills. Two specimens obtained.

14. NUMIDA MELEAGRIS.

There are several large flocks on the island, and these frequent the hills during the day, but come down towards the evening and the early morning to feed on the maize-plots, where they do a considerable amount of damage.

Each flock has a leader, which is the first to show himself on some commanding point overlooking the feeding-ground to see whether all is safe, after which he utters his well-known cry, a signal for the others to come and invade the lower ground; and so strict a look-out does he keep over them while feeding that it is difficult to approach within five hundred yards of the flock.

15. NUMENIUS PHEOPUS.

16. ARDEA GARZETTA.

The only breeding-station is in Tarrafal Bay, where we met with nine pairs of birds. On April 24th laying had not commenced, but one of the nests was nearly completed, being composed of twigs of *Acacia albida* and lined with dried grass and goats'-hair. The nests were either built on ledges in the cliffs about 20 feet above the rocks or in small cavern-like recesses. Out of this colony we obtained seven specimens. In different individuals the colour of the legs and feet varied considerably. Some had those parts absolutely black (*Ardea nigripes* Temm.), and in others they were spotted with yellow (*Ardea garzetta*), while the feet of one individual were pale greenish-yellow.

There can be no doubt that all the Egrets we obtained belong to one and the same species, and that the colour of

the legs and feet is due to age and is of no value as a specific character.

16. PHALACROCORAX LUCIDUS.

One adult female specimen obtained.

17. SULA FIBER.

18. STREPSILAS INTERPRES.

Observed on São Nicolau.

XI. *The Desertas.*

On April 28th we left São Nicolau for the Desertas, in a schooner, a fine old American pilot-boat of nearly eighty tons, which we had chartered at São Vicente.

The small islands known as the Desertas are three in number: Raza, Branca, and Santa Luzia. The two former, devoid of water, are uninhabited; no hostile influence coming to mar the peace of the many sea-birds that have made them their home, save perhaps at random times when fisherfolk land and employ the day in catching fish.

Raza was the first island we visited, and all the time we remained on it the schooner was obliged to beat backwards and forwards, there being no anchorage. Landing is effected with difficulty (at times being wellnigh impossible), and only then on the south side, upon a broad band of low flat rock. This island possesses an area of about three square miles, the larger portion of which is flat, strewn, however, with stones of all sizes, the boulders in many instances being undermined by Shearwaters; but here and there, amid this expanse of stones, there are patches of smooth ground, toned with fine dead grass, and with a creeping plant bearing a prickly fruit (*Tribulus cistoides*). On the north side, hills descend abruptly to the sea; while the low flat ground on the south is terminated by an almost perpendicular face of rock, at the most thirty feet in height, and rent with wide fissures and jagged scars. These hollows and caverns are the home of the Tropic-bird (*Phaethon aethereus*). The entrances to these snug resorts were well whitened, and many of the owners were abroad. With their two long tail-feathers

streaming out behind them, they kept speeding out across the sea.

The noise of our landing reached a magnificent flock of Little Egrets, which speckled the rocks, some five hundred, on our left. They all took to flight, their pure white plumage making a striking contrast to the black expanse of rocks and then to the liquid blue of the sea. A party of Turnstones were also at the same spot, and although they assumed close order, they did not follow the example of the Egrets. And then, on our left, we caught a glimpse of a Gannet colony. Already a general movement seaward had taken place. Not a few, however, remained on the ledges of rock, looking very soldier-like and seeming quite indifferent to our near approach. Some were immature birds, with the entire underparts speckled with chocolate-brown. Out at sea were several Tropic-birds which out-distanced their companions and disappeared from sight. They went straight to their rocky homes that held their youngsters, and, with wings sharply beating, hovered round their entrances; the next moment to retreat, and then to return and make further futile attempts, as if the gaining of their nest-holes was fraught with much uncertainty.

Here and there the continuity of the cliffs is broken by rocky slopes that lead up to the higher ground, and, as we ascended one of these natural staircases, wheezy groans came from Shearwaters (*Puffinus marie*), ensconced in rocky cavities on our right and left, and on looking into these holes we could just discern them sitting together in couples. We next observed a number of Cocteau's skinks basking on flat portions of rocks. One obtained measured 17 inches. These skinks live in the clefts of rock and often in company with the Shearwaters.

On reaching the level ground we discovered a species of Desert-Lark (*Spizocorys*) in flocks. These birds are so tame that we could have knocked many over with sticks. On taking to flight they utter notes very similar to those of our Skylark when on the wing. Among a flock we had no difficulty in discerning the sexes; since, on following a

Ibis, 1898, Pl. III.



Mintern Bros. imp

SPIZOCORYS RAZZÆ.

J. G. Keulemans del et lith.

female, the male bird with its crest-feathers erect immediately appeared on the scene and ran close by her. Breeding was almost over, the majority of the birds being in a moulting condition. We, however, found a nest containing one young bird. The nest was composed of dry grass, and built in a depression underneath a large stone. Their chief food seemed to be grass-seed, but now and again we found flocks picking up a livelihood on the stretch of black rocks close to the sea.

XII. *List of the Birds of Raza.*

1. FALCO NEGLECTUS.

One specimen obtained.

2. PANDION HALIAËTUS.

3. CORVUS UMBRINUS.

4. PASSER JAGOENSIS.

These Sparrows nest in holes in the cliffs.

5. SPIZOCORYS RAZÆ sp. nov. (Plate III.)

Adult male and female. General colour above pale sandy brown; each feather of the crown and upper parts dark brown, widely margined with pale isabelline. The feathers of the crown lengthened into a short full crest; lores whitish; cheeks whitish spotted with brown, and ear-coverts brownish white with darker middles; chin, throat, and a half collar round the sides of the neck white; chest white, tinged with sandy, each feather with a triangular dark brown spot at the end of the shaft; rest of the underparts white, brownish on the sides and flanks, where the feathers have dark shaft-stripes. Quills and tail-feathers dark brown, margined and tipped with pale sandy white. Bill blackish horn, whitish towards the base of the lower mandible; iris dark hazel; legs and feet brownish flesh-colour; claws blackish horn.

Adult male. Total length 5·84 inches, culmen 0·65, wing 3·2, tail 2·05, tarsus 0·85.

Adult female. Total length 5·34 inches, culmen 0·6, wing 3·0, tail 1·75, tarsus 0·8.

All the adults, except one female in full moult, clearly show the bastard primary; in the immature bird this feather is distinctly longer than in the adult.

Immature male in first plumage. General colour above pale rufous-buff; most of the feathers of the crown, back, and wing-coverts have a brownish-black spot at their extremities, otherwise the plumage of the upper parts is much like that of the adults; the ear-coverts are dull rufous-brown, and the chest is distinctly washed with rufous-buff.

6. *STREPSILAS INTERPRES.*

7. *PUFFINUS MARIE* Alexander (see above, p. 92).

Raza and Branca may be looked upon as the chief habitat of this species. Before landing on Raza we saw a large flock in a wedge-shaped formation sleeping on the water. They frequent chiefly the hollows in the cliffs, but we found some on the higher ground in holes made by the birds themselves underneath large boulders, where the entrances were strewn with small stones and flakes of rock, evidently brought there by the birds, since the soil is of a fine nature.

These Shearwaters appear to prey upon smaller birds, for in many instances the vicinity of their holes was strewn with bones and feathers. While on Brava, we constantly heard this bird at night among the hills; its weird cry, only enhanced by the silence, is like the whistling cry of the Wigeon. When fishermen land on Raza, they capture many of these birds for eating purposes, sometimes taking away almost a boat-load to their homes.

Twelve specimens were obtained.

8. *ARDEA GARZETTA.*

Observed, but there is no breeding-station on the island.

9. *PHALACROCORAX LUCIDUS.*

10. *SULA FIBER.*

Five clutches of eggs obtained.

11. PHAETHON ÆTHEREUS.

In the immature bird the plumage of the upper parts is barred with black as in the adult, but in a lesser degree. The beak is a greenish-horn colour, and the webs of the feet are lemon-yellow. The two long rectrices are absent.

XIII. *Branca, Santa Luzia, Sal, and Boavista.*

Branca is nothing more than a small irregular chain of lofty, craggy hills, rising up from the sea with extraordinary abruptness on its north side, while about halfway down its height this chain has almost a glacis-like slope down to the sea. This slope is honeycombed by Petrels. We found the White-breasted Petrel (*Pelagodroma marina*), *Puffinus assimilis*, and *Oceanodroma cryptoleucura* breeding, all having young. *Puffinus mariaë* also inhabits the island. From several Petrels-holes we pulled out Cocteau's skinks, but, there being few of these lizards, the Petrels have made the island their home. There is not a doubt that Raza was also a breeding-place before the skinks became numerous there, for we found many disused Petrel's-holes on that island. Out at sea we saw numbers of *Puffinus assimilis*, and at intervals one of them would disappear and swim after some small fish just beneath the surface of the water, after the manner of a Penguin.

While on Branca we obtained specimens of *Pelagodroma marina*, *Oceanodroma cryptoleucura*, *Puffinus assimilis*, and the young of all three, also five eggs of the second species named.

On May 5th we landed on Santa Luzia, an island of wild goats. A small flock of *Cursorius gallicus*, a few Whimbrels, a Vulture or two, and a flock of Sanderlings represented the bird-life of the island.

We left Santa Luzia on May 7th and sailed for Sal, a voyage which took two days, since the wind was against us the whole time. Sal possesses little or no coast, but a low shore-line instead. The greater portion of the island is flat, with a loose stony soil, sandy in places and devoid of all

tree-growth, while towards the interior it is bosomed with brown-looking semiglobular hills. Of the whole group this island is the poorest in the way of bird-life, and two days proved ample for its exploration. Passaro Island, lying to the north of Mordeira Bay, is a nesting-place of Gannets (*Sula fiber*). A number of *Ægialitis cantiana* frequent the salt-pans around Santa Maria, in the vicinity of which they breed. On the flat stony portions we found *Ammomanes cinctura* in considerable numbers and two nests, each containing one young one. Besides these two species and the Gannets, a flock of Sanderlings in summer plumage, a few pairs of Cream-coloured Coursers, several Whimbrels, and a solitary Osprey were all the birds we met with.

The next island we visited was Boavista, which is nothing more than a sandy desert, with the exception of a few stone-strewn levels and several hills of considerable altitude. This desert of silver-white sand abounds in shallow hollows scooped out by the wind, and sand-dunes, the sides of which near the shore-line have been fashioned by the sea into high embankments, while in many places along the entire coast long narrow tongues of stony ground shoot out into the sea, making deep low-coasted bays. Clusters of tall gaunt-looking coconut-trees grow in many of the sand-dells, and about their trunks nestle banana plants with their large leaves torn into a thousand shreds by the wind, while on the flat expanses are clumps of lavender-bushes and scattered acacia-trees, stunted and ill-grown.

On May 13th we made our first attempt to approach the Flamingoes, which frequent a series of brackish pools close to the sea and not far from the village of Estenço Velho. The road thither being anything but good, we made use of our schooner to get there. Towards the evening we landed and were met by a guide, who undertook to take us to the locality. On the way we happened to look seaward, and there, to our great satisfaction, caught sight of a party of Flamingoes coming towards the brackish pools; not in any wedge-shaped formation, but in a long, even line. They settled in open order, their backs towards the sea, preened their feathers,

and then commenced to feed, without changing their position. Our guide mumbled a prayer in his hat; a minute later, however, they saw us, and then a slow march towards a common base, where their leader stood erect, was executed, a manœuvre soon followed by a general uprising amid goose-like croaks. In the middle distance the white of their plumage disappeared, leaving visible only the rose-coloured bands on their wings, like a long streak of feathery cloud at sunset. Soon their white plumage showed out again as they steered once more towards the sandy coast, where a general settling took place some two miles ahead of us. / After this we repaired to the village, where a house was placed at our disposal for the night.

XIV. *List of the Birds of Boavista.*

1. NEOPHRON PERCNOPTERUS.

2. BUTEO VULGARIS.

The only specimen we procured was an immature male. Both this one and the female obtained on Santiago are small.

Adult female (Santiago): wing 14·9 inches, length 20·4.
Immature male (Boavista): wing 13·5 inches, length 20·43.
 Measured in the flesh.

3. MILVUS MIGRANS.

4. FALCO NEGLECTUS.

5. PANDION HALIAËTUS.

Breeds sparingly in suitable localities. On the small island opposite Sal Rei we found a nest of this bird built on a rock at sea. It was an enormous structure, bits of shell and seaweed forming the lining.

6. CORVUS UMBRINUS.

Very numerous, coming together in large flocks every evening and blackening with their bodies the sides of the sandhills, where they roost for the night.

7. SYLVIA CONSPICILLATA.

8. PASSER JAGOENSIS.

9. ALÆMON ALAUDIPES (Desf.).

This species frequents the sandy portion of the island near the sea. Throughout the day we found it either singly or in pairs, but, as a rule, the males kept to themselves, while each female was invariably accompanied by a single immature bird, a fact from which it appears that a bird of this species has no more than a single young one. This also seems to be a general case with *Ammomanes cinctura* and *Spizocorys razæ*. Hence we may reasonably infer that all Desert-Larks lay no more than a single egg.

Alæmon alaudipes will sometimes perch on trees, while its manner on the ground is very Thrush-like. It runs in front of its pursuer, with head bent low, now and again stopping, and then raising its head as if to listen. Its flight is slow and clumsy, and rather Jay-like in action, while the broad white bars on the wings are very conspicuous as the bird travels forward, only to alight, however, a few yards ahead of the spectator. Towards sundown individuals come together from far and near and resort to a favourite spot for an evening meal.

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
Ad. ♂ (Boavista)	9·46	1·1	4·8	3·5	1·35
	9·33	1·25	5·0	3·5	1·35
Ad. ♀ "	8·33	1·25	4·9	3·5	1·4
	8·4	1·12	4·55	3·1	1·3

In life we had no difficulty in discerning the sexes, the females looking always the smallest. The food chiefly consists of locusts. Breeding takes place in September. We obtained twelve specimens.

10. AMMOMANES CINCTURA.

Plentiful; three specimens obtained.

11. PYRRHULAUDA NIGRICEPS.

More numerous than on any other island. They used to get up close to our feet in clouds and fly forward a few feet above the ground.

12. *COTURNIX COMMUNIS*.

We never obtained an example, but on several occasions came across places where birds of this species had been dusting themselves.

13. *CURSORIUS GALLICUS*.

Well distributed. We met with flocks numbering often over a score on the higher levels, and these consisted chiefly of immature birds, led and watched over, however, by one or two old birds that gave warning to them on the approach of danger. The majority of adult birds were by themselves and in pairs. Towards evening these flocks resorted to plots of ground overgrown with sweet potatoes and maize and enclosed by stone walls.

These birds afforded excellent shooting, and were by no means bad eating. Fifteen specimens were obtained.

14. *SQUATAROLA HELVETICA*.

On May 9th we flushed a pair of Grey Plovers from a piece of low-lying rock; they were in full summer-plumage.

15. *STREPSILAS INTERPRES*.

16. *ÆGIALITIS CANTIANA*.

17. *NUMENIUS ARQUATUS*.

On May 13th, while skirting the coast, the well-known whistling cries of a pair of Curlews attracted our attention.

18. *NUMENIUS PHEOPUS*.

19. *CALIDRIS ARENARIA*.

In flocks along the sandy portion of the shore-line.

20. *ARDEA GARZETTA*.

A colony of fifteen pairs of Little Egrets exists about three miles north of Sal Rei along the coast, the nests being placed on ledges of rock facing the sea, and ranging from fifteen to twenty feet up. On the 10th of May breeding had only just commenced, but one nest out of a number ready contained two eggs. The nests were rough structures, composed entirely of the thorny twigs of the acacia.

21. PHALACROCORAX LUCIDUS.

22. SULA FIBER.

23. FREGATA AQUILA.

This species nests on the rocks of the small island opposite Sal Rei, which is the only place in the whole group where it breeds. Generally flying at a great altitude, the Frigate-bird seldom approaches within shot; on one occasion, however, we obtained a bird as it was engaged in chasing several Gannets and attempting to rob them of their prey.

24. PHÆNICOPTERUS ROSEUS.

A small colony breeds in the vicinity of some brackish pools close to the sea and in the neighbourhood of Estenço Velho. Breeding takes place about the middle of June, and the eggs are laid on the bare ground. Two adult males were obtained.

25. MARMARONETTA ANGUSTIROSTRIS.

The Marbled Duck breeds in the vicinity of many of the brackish pools on the island. We obtained three specimens, two males and a female. In the latter the legs and feet were of a distinctly greenish colour, instead of the dark brown of those of the males.

On May 21st we put into Tarrafal Bay, the principal harbour of Santo Antão. The island is very mountainous and possesses extremely fertile valleys. São Vicente depends entirely upon it for produce. As regards its bird-life the island calls for no special mention, since the resident species are the same as those found on São Nicolau.

XV. *Complete List of the Birds of the Cape Verde Islands.*

[The species marked with an asterisk were not observed by Dohrn.]

Resident Species.

1. NEOPHRON PERCNOPTERUS (Linn.).

Neophron percnopterus Dohrn, J. f. O. 1871, p. 3; Sharpe, Cat. B. Brit. Mus. i. p. 17 (1874).

*2. BUTEO VULGARIS (Leach).

Buteo vulgaris Sharpe, Cat. B. Brit. Mus. i. p. 186 (1874).

3. MILVUS MIGRANS (Bodd.).

Milvus regalis Dohrn, J. f. O. i. 1871, p. 3.

Milvus korschun Sharpe, Cat. B. Brit. Mus. p. 322 (1874).

4. FALCO NEGLECTUS Schleg.

Falco tinnunculus Dohrn, J. f. O. 1871, p. 4.

Falco neglectus Schleg. Mus. P.B., Acc. p. 43 (1873).

Cerchneis neglectus Sharpe, Cat. B. Brit. Mus. i. p. 428 (1874).

5. PANDION HALIAËTUS (Linn.).

Pandion haliaëtus Dohrn, J. f. O. 1871, p. 3; Sharpe, Cat. B. Brit. Mus. i. p. 449 (1874).

*6. STRIX INSULARIS Pelz.

Strix insularis Pelz. J. f. O. 1872, p. 23.

7. CORVUS UMBRINUS Sund.

Corvus corone Dohrn, J. f. O. 1871, p. 5.

8. SYLVIA CONSPICILLATA Temm.

Sylvia conspicillata Dohrn, J. f. O. 1871, p. 5; Seebohm, Cat. B. Brit. Mus. v. p. 22 (1881).

*9. SYLVIA ATRICAPILLA GULARIS subsp. nov.

10. CALAMOCICHLA BREVIPENNIS (Dohrn).

Calamoherpe brevipennis Dohrn, J. f. O. 1871, p. 4.

Calamocichla brevipennis Sharpe, Cat. B. Brit. Mus. vii. p. 132 (1883).

11. PASSER SALICICOLA Vieill.

Passer salicarius Dohrn, J. f. O. 1871, p. 6.

Passer hispaniolensis Sharpe, Cat. B. Brit. Mus. xii. p. 317 (1888).

12. PASSER JAGOENSIS Gould.

Passer jagoensis Dohrn, J. f. O. 1871, p. 6; Sharpe, Cat. B. Brit. Mus. xii. p. 323 (1888).

*13. ESTRILDA JAGOENSIS sp. nov.

Estrellda cinerea Dohrn, J. f. O. 1871, p. 7.

*14. ALÆMON ALAUDIPES (Desf.).

Alæmon alaudipes Sharpe, Cat. B. Brit. Mus. xiii. p. 518 (1890).

15. AMMOMANES CINCTURA (Gould).

Alauda cinctura Dohrn, J. f. O. 1871, p. 5.
Ammomanes cinctura Sharpe, Cat. B. Brit. Mus. xiii. p. 644 (1890).

*16. SPIZOCORYS RAZÆ sp. nov.

17. PYRRHULAUDA NIGRICEPS Gould.

Pyrrhulauda nigriceps Gould, Voy. 'Beagle,' Birds, p. 87 (1841); Sharpe, Cat. B. Brit. Mus. xiii. p. 650, footnote (1890).

18. CYPSELUS UNICOLOR Jard.

Micropus unicolor Hartert, Cat. B. Brit. Mus. xvi. p. 448 (1892).

19. HALCYON ERYTHROGASTER Gould.

Halcyon rufiventris Dohrn, J. f. O. 1871, p. 4.
Halcyon erythrogaster Sharpe, Cat. B. Brit. Mus. xvii. p. 234 (1892).

20. COLUMBA LIVIA (Bonn.).

Columba livia Dohrn, J. f. O. 1871, p. 7; Salvad. Cat. B. Brit. Mus. xxi. p. 252 (1893).

*21. COTURNIX CAPENSIS (Linn.).

Coturnix capensis Grant, Cat. B. Brit. Mus. xxii. p. 231 (1893).

22. NUMIDA MELEAGRIS (Linn.).

Numida meleagris Dohrn, J. f. O. 1871, p. 7; Grant, Cat. B. Brit. Mus. xxii. p. 375 (1893).

*23. CURSORIUS GALLICUS (Gmel.).

Cursorius gallicus Sharpe, Cat. B. Brit. Mus. xxiv. p. 34 (1896).

*24. ÆGIALITIS CANTIANA (Lath.).

Ægialitis alexandrina Sharpe, Cat. B. Brit. Mus. xxiv. p. 275 (1896).

*25. OCEANODROMA CRYPTOLEUCURA (Ridgw.).

Oceanodroma cryptoleucura Ogilvie Grant, *Ibis*, 1896, p. 53; Salvin, *Cat. B. Brit. Mus.* xxv. p. 350 (1896).

*26. PELAGODROMA MARINA (Lath.).

Pelagodroma marina Ogilvie Grant, *Ibis*, 1896, p. 51; Salvin, *Cat. B. Brit. Mus.* xxv. p. 362 (1896).

*27. PUFFINUS MARLÆ sp. nov.

*28. PUFFINUS ASSIMILIS Gould.

Puffinus assimilis Ogilvie Grant, *Ibis*, 1896, p. 50; Salvin, *Cat. B. Brit. Mus.* xxv. p. 384 (1896).

29. ARDEA GARZETTA Linn.

Ardea garzetta Dohrn, *J. f. O.* 1871, p. 8.

*30. PHALACROCORAX LUCIDUS (Licht.).

Phalacrocorax melanogaster Hartl. *Orn. W.-Afr.* p. 260 (1857).

31. SULA FIBER (Linn.).

Dysporus sula Dohrn, *J. f. O.* 1871, p. 8.

32. PHAETHON ÆTHEREUS (Linn.).

Phaethon æthereus Dohrn, *J. f. O.* 1871, p. 8.

*33. FREGATA AQUILA (Linn.).

Fregata aquila Hartl. *Orn. W.-Afr.* p. 260 (1857).

34. PHÆNICOPTERUS ROSEUS Pall.

Phænicopterus antiquorum Dohrn, *J. f. O.* 1871, p. 9.

Phænicopterus roseus Salvad. *Cat. B. Brit. Mus.* xxvii. p. 12 (1895).

35. MARMARONETTA ANGUSTIROSTRIS (Ménétr.).

Marmaronetta angustirostris Salvad. *Cat. B. Brit. Mus.* xxvii. p. 321 (1895).

Migratory Species.

1. SYLVIA ATRICAPILLA Linn.

Sylvia atricapilla Dohrn, *J. f. O.* 1871, p. 5; Seebohm, *Cat. B. Brit. Mus.* v. p. 23 (1881).

*2. CHELIDON URBICA (Linn.).

Chelidon urbica Sharpe, *Cat. B. Brit. Mus.* x. p. 87 (1885).

*3. HIRUNDO RUSTICA Linn.

Hirundo rustica Sharpe, Cat. B. Brit. Mus. x. p. 128 (1885).

*4. COTURNIX COMMUNIS Bonn.

Coturnix coturnix Grant, Cat. B. Brit. Mus. xxii. p. 231 (1893).

*5. SQUATAROLA HELVETICA (Linn.).

Squatarola helvetica Sharpe, Cat. B. Brit. Mus. xxiv. p. 182 (1896).

*6. STREPSILAS INTERPRES (Linn.).

Arenaria interpres Sharpe, Cat. B. Brit. Mus. xxiv. p. 92 (1896).

*7. NUMENIUS ARQUATUS (Linn.).

Numenius arquatus Sharpe, Cat. B. Brit. Mus. xxiv. p. 341 (1896).

8. NUMENIUS PHÆOPUS (Linn.).

Numenius phæopus Sharpe, Cat. B. Brit. Mus. xxiv. p. 355 (1896).

*9. TRINGOIDES HYPOLEUCUS (Linn.).

Tringoides hypoleucus Sharpe, Cat. B. Brit. Mus. xxiv. p. 456 (1896).

*10. TOTANUS GLOTTIS (Lath.).

Glottis nebularius Sharpe, Cat. B. Brit. Mus. xxiv. p. 481 (1896).

*11. CALIDRIS ARENARIA (Linn.).

Calidris arenaria Sharpe, Cat. B. Brit. Mus. xxiv. p. 526 (1896).

*12. RISSA TRIDACTYLA (Linn.).

Rissa tridactyla Saunders, Cat. B. Brit. Mus. xxv. p. 305 (1896).

*13. ARDEA PURPUREA Linn.

Ardea purpurea Hartl. Orn. W.-Afr. p. 220 (1857); Meade-Waldo, Ibis, 1889, p. 4.

14. ARDEA CINEREA Linn.

Ardea cinerea Dohrn, J. f. O. 1871, p. 8.